

Operating instructions

Machine designation: Triple workplace dust extraction unit

Machine type: D-LE 260 E

Machine no.:

Keep for future reference!

Dear customer,

Thank you for the confidence you have placed in us by purchasing this triple workplace dust extraction unit.

Please take time to read these operating instructions carefully, especially before using the unit for the first time, as this will ensure that the unit will give you good service for many years to come.

Contents

1	Safety	2
1.1	Correct use	2
1.2	Possible dangers	2
1.3	Approved operators	2
1.4	Safety measures at site of operation	3
1.5	Marking of safety references contained in these instructions	3
2	Starting up	4
2.1	Technical data	4
2.2	Unpacking the triple workplace dust extraction unit	5
2.3	Short description of unit and identification of components	5
2.4	Starting up procedure	7
2.4.1	Pneumatic structure of tube/hose installation	7
2.4.2	Structure of electrical installation	8
3	Operation	11
3.1	Checking the filter system	11
3.2	Automatic On-Off device / Connection of dust-generating devices.....	11
3.2.1	Individual adaptation of extraction unit sensitivity to dust-generating devices	12
3.3	Automatic air volume control	12
3.4	Automatic shut-off and filter change control lamp	12
4	Cleaning/Maintenance	13
4.1	Replacing the filter bag	13
4.1.1	Removing the filter bag	13
4.1.2	Inserting the filter bag	14
4.2	Cleaning (replacement) of ultra-fine filter	15
4.2.1	Removing the ultra-fine filter	15
4.2.2	Fitting the ultra-fine filter	15
4.3	“Service” control lamp	16
5	Electrical fuse protection	16
6	Warranty conditions	17
7	EC declaration of conformity	18

1 Safety

1.1 Correct use

The D-LE 260 E triple workplace dust extraction unit is used in dental laboratories for extracting dust produced when working with instruments which generate dust. It should never be used for vacuuming liquids.

The unit is suitable for collecting category C dust in compliance with the requirements laid down by the German Employers' Liability Insurance Association (Berufsgenossenschaft) as defined in ZH 1/487.

Unauthorized modifications and additions are not permitted for safety reasons!

The operating and maintenance conditions specified in these operating instructions must be adhered to.

Caution	The unit is not designed as a medical device! Use on people is prohibited!
----------------	--

1.2 Possible dangers

- Potential sources of ignition or combustible gases, vapors and liquids should not be extracted with the Triple workplace dust extraction unit.
- Switch off the unit and disconnect from mains power supply before carrying out maintenance and cleaning work (pull out the mains plug).
- Particular attention should be paid to ensuring that the filter bag and ultra-fine filter are always installed correctly and undamaged, as the dust collected more or less poses a hazard to health!
- The unit should be disconnected from the mains power supply before accessing the built-in electrical components!

Danger	The unit is not suitable for use in rooms where special conditions exist (e.g. corrosive or potentially explosive atmospheres).
---------------	---

1.3 Approved operators

The operator of the unit should ensure that the operating instructions are accessible to the operating personnel and have been read and fully understood. Only then should the operator commission the unit.

1.4 Safety measures at site of operation

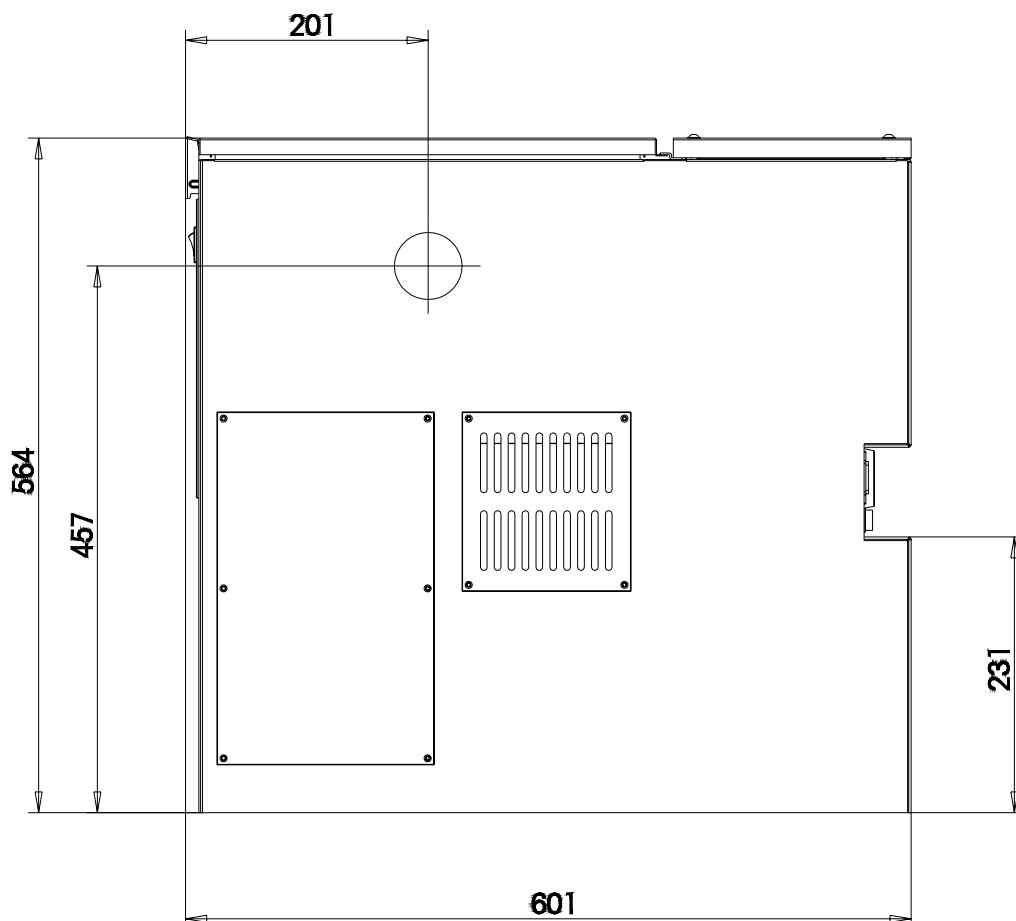
- Air flowing out of the air outlet (14) should not be hindered in any way.
- The unit should only be operated in cabinets or confined spaces if adequate ventilation is provided and the ambient temperature resulting from unit operation does not rise by more than (approx.) 10 °C.
- The distance between the air outlet and the next obstacle (e.g. a wall or furniture) must be at least 10 cm.
- No foreign bodies should be inserted through the ventilation ducts on the unit.
- Ensure that the workplace always complies with pertinent accident prevention regulations by introducing appropriate internal company instructions and conducting inspections.

1.5 Marking of safety references contained in these instructions

Note	Refers to tips and other particularly helpful information.
Caution	Refers to particular methods of operation or handling, non-adherence to which can lead to malfunctioning, damage or other problems.
Danger	Refers to dangerous situations which can lead to injuries.

2 Starting up

2.1 Technical data



Illus. 1: Side view with dimensions

Machine designation	:	Triple workplace dust extraction unit
Machine type	:	D-LE 260 E
Unit dimensions	:	Width 200 mm, Depth 601 mm, Height 564 mm
Electrical connection	:	230 Volt/50 Hz
Overvoltage category	:	II
Power consumption	:	max. 900 W The overall power consumption of all connected devices (in total) should not exceed 2200 W.
Electrical fusing	:	2x 16 A/T (mains connection)
Air flow	:	max. 58 l/second
Extraction hose connection	:	Ø 50 mm
Dust collection	:	Up to approx. 10 kg (depending on dust type)
Weight	:	Approx. 26 kg

2.2 Unpacking the triple workplace dust extraction unit

Note	Inspect the packaging and unit for transportation damage and report any damage detected immediately to the haulage firm and/or supplier.
------	--

1. Place the carton on a flat surface.
2. Remove the top packaging material.
3. Push the packaging material away from the unit. Grasp hold of the unit by the lower edge.
4. The unit (weight = approx. 26 kg) should be lifted out of the carton by two persons.
5. Check the accessories:
 - Documentation
 - Mains power cable
 - See delivery note for further possible accessories

2.3 Short description of unit and identification of components

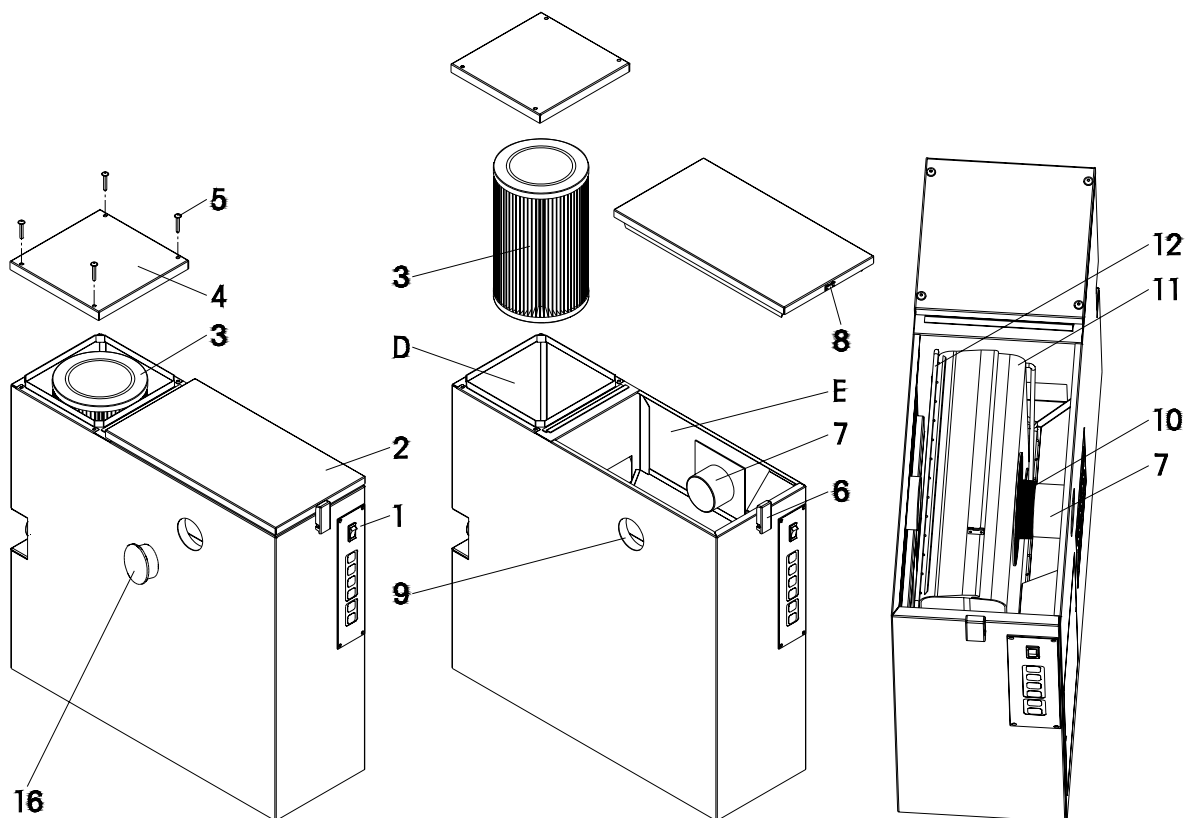
The D-LE 260 E triple workplace dust extraction unit has a powerful high-pressure fan which is fitted with noise suppression. It is also equipped with an automatic electronic ignition, an automatic shut-off feature with filter change indicator and automatic air volume control. Pneumatic stop valves are connected and automatically actuated when the respective dust-generating device is activated, enabling free airflow at the specified vacuum duct.

The automatic ignition electronics detect a rotating hand-held piece in a fraction of a second and immediately actuate dust extraction. The connected stop valve (accessory) automatically enables the extraction line immediately. Any commercially-available hand-held pieces can be used for this purpose. The D-LE 260 E extraction unit is also used as an extractor for sand blasting instruments, saws and other dust-generating devices, electronic detection functioning here in the same manner.

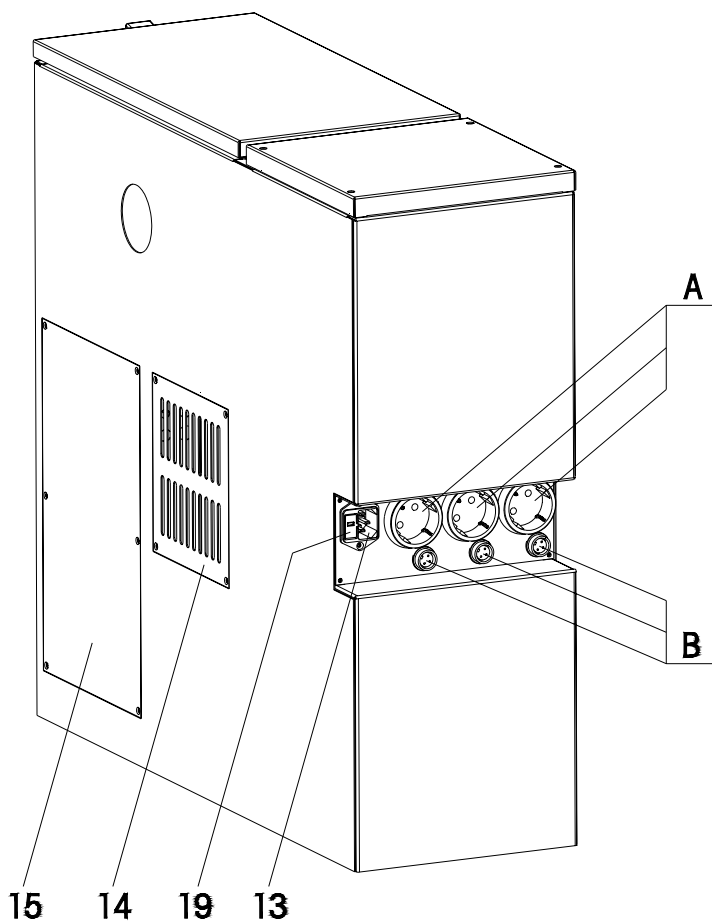
The dust is collected in a double-ply disposable filter bag with a capacity of up to 10 kg, depending on the nature of the dust.

The ultra-fine filter has a large surface area and is serially connected to the disposable filter bag. It can even collect category C dust.¹

¹ Sicherheitstechnisches Informations- und Arbeitsblatt der Berufsgenossenschaft Nr.: 510210
(German Employers' Liability Insurance Association safety information sheet)



Illus. 2: Extraction unit components



Illus. 3: Rear of unit

1	Plate
2	Closure cover for filter bag
3	Ultra-fine filter cartridge
4	Ultra-fine filter cover
5	4x M5x30 flange bolts (no. 3)
6	Quick-action closure
7	Vacuum fitting Ø 50 mm (right)
8	Counteracting hook for quick-action closure
9	Vacuum fitting Ø 50 mm (left)
10	Plastic fittings for filter bag
11	Filter bag
12	Wire basket
13	Mains connection socket 230V/50Hz
14	Air outlet cover
15	Electrical cabinet cover
16	Closure plug
19	2x main fuses
A	3x socket for dust-generating devices
B	3x socket for automatic stop valves
D	Ultra-fine filter chamber
E	Filter bag chamber

2.4 Starting up procedure

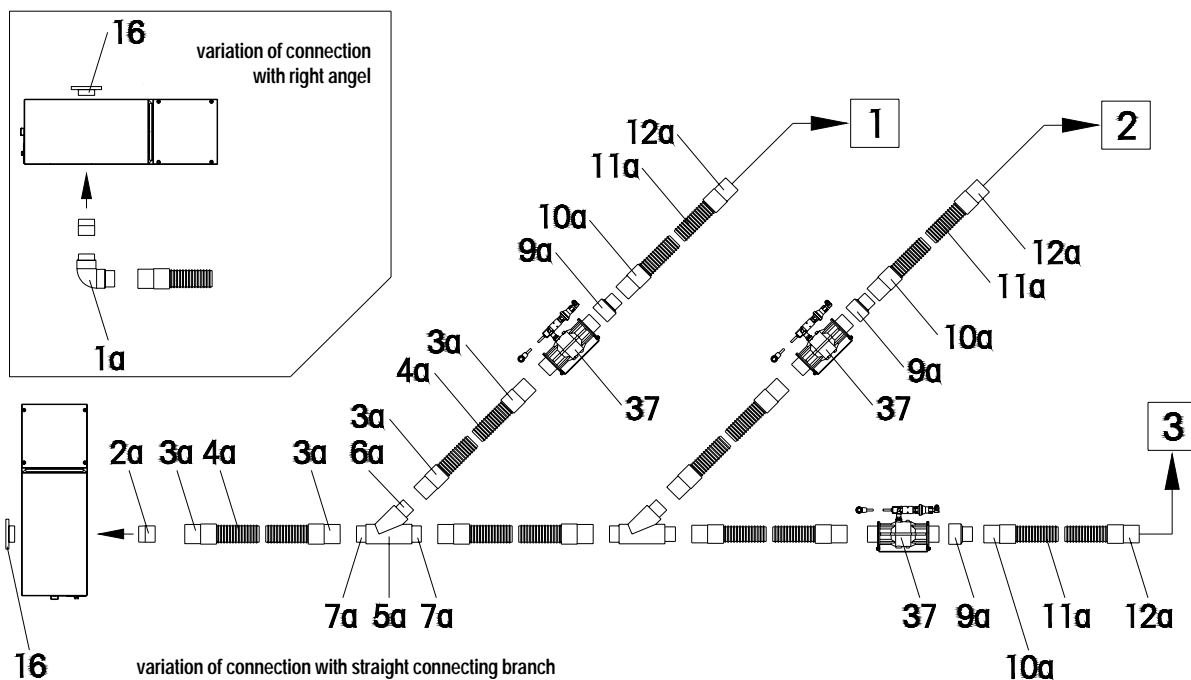
- Check filter system (see Section “3.1 Checking the filter system”).

2.4.1 Pneumatic structure of tube/hose installation

(see Illus. 2, Page 6, Illus. 4, Page 7 and Illus. 5, Page 8)

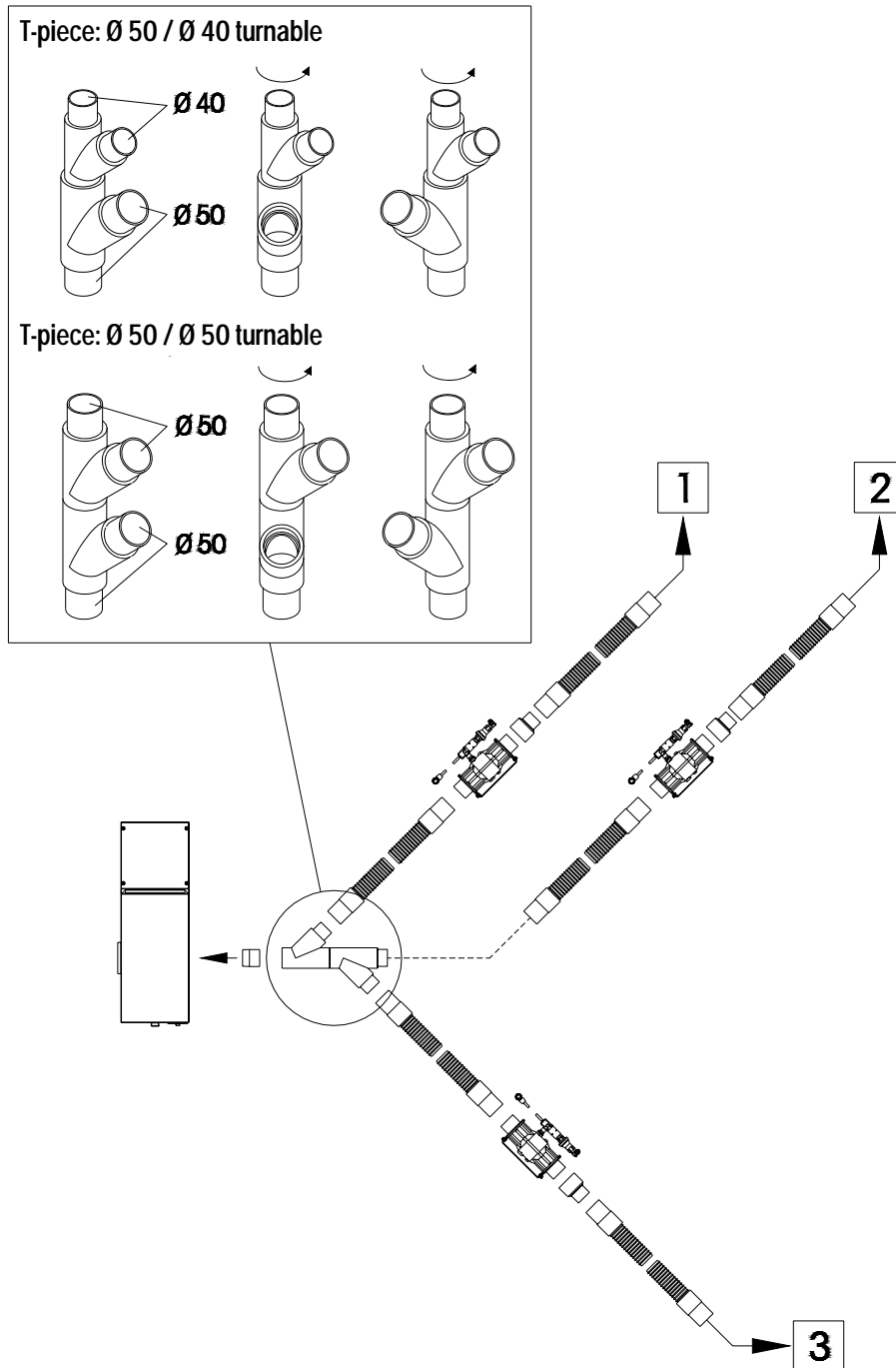
1. Establish a hose/tube connection to the dust-generating devices (select a hose length which is as short as possible, maximum length approx. 2 m for each device).
2. The tube/hose installation is connected to the right fitting (7) or left fitting (9) of the extraction unit. The remaining connection fittings on the housing (7 or 9) should always be sealed with the plastic closure plug (16).
3. Connect the automatic pneumatic stop valve to the compressed air supply (pneumatic connection (41), see Illus. 6, Page 9)

Note All devices and installation components can be connected to the unit with flexible hoses or rigid plastic tubes (see following examples).



Illus. 4: Laying tubing to devices over long distances

1a	90° angle piece Ø 50	7a	T-piece connection fitting Ø 50
2a	Straight connection fitting Ø 50	9a	Reducer Ø 50 / Ø 45 / Ø 40
3a	PVC hose fitting Ø 50	10a	PVC hose fitting Ø 50 / Ø 45 / Ø 40
4a	Hose/Tube Ø 50	11a	Hose/Tube Ø 50 / Ø 45 / Ø 40
5a	T-piece Ø 50	12a	PVC hose fitting Ø 50 / Ø 45 / Ø 40
6a	T-piece connection fitting Ø 50	37	Automatic pneumatic stop valve
[1]	Dust-generating device no. 1		
[2]	Dust-generating device no. 2		
[3]	Dust-generating device no. 3		

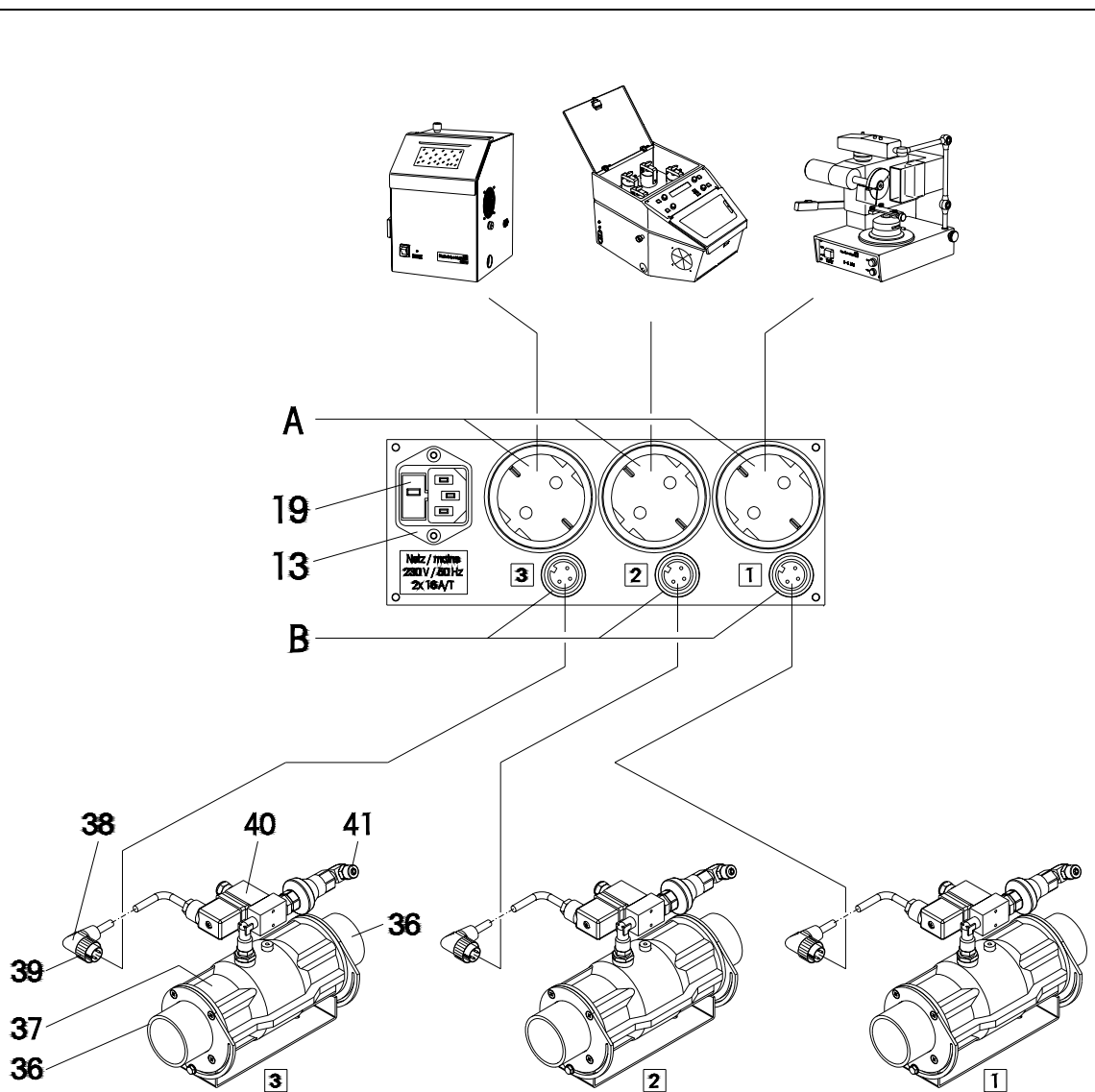


Illus. 5: Laying tubing to devices over shorter distances

2.4.2 Structure of electrical installation

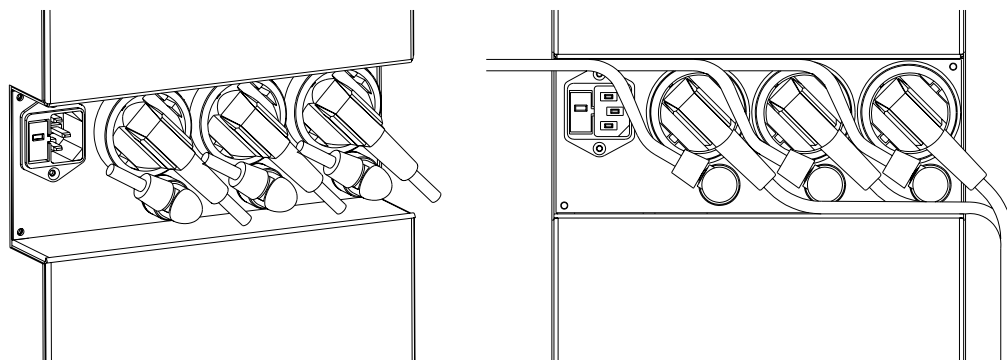
(see Illus. 6, Page 9)

1. Connect the dust-generating device mains power cable to **sockets A** (socket 1, 2, 3) (see Illus. 2, Page 6 and see Illus. 6, Page 9).
2. Connect the stop valve connection cable to **sockets B** to (respective socket 1, 2, 3). Turn the outer sleeve (39) of the connector (38) to the right to lock the connector in **socket B** (bayonet lock).
3. Establish a connection to the mains power supply (230V/50Hz) with the mains cable provided (socket (13)).



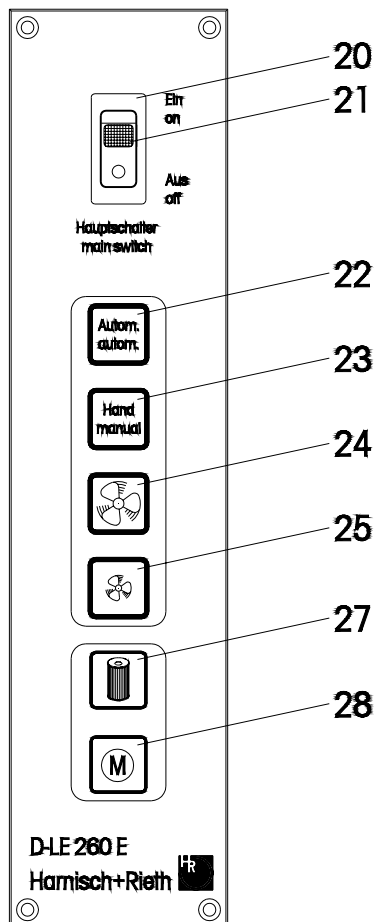
Illus. 6: Unit and electrical connections

13	Mains power supply socket 230V/50Hz	39	Outer connector sleeve with bayonet lock
19	Main fuses (2x 16 A/T)	40	Solenoid valve
36	Connection fittings Ø 50 mm	41	Pneumatic connection
37	Automatic pneumatic stop valve	A	3x socket for dust-generating devices
38	Connector with cable and solenoid valve socket	B	3x socket for automatic stop valves
1	Designation for unit socket and stop valve socket no. 1		
2	Designation for unit socket and stop valve socket no. 2	3	Designation for unit socket and stop valve socket no. 3



Illus. 7: Laying lines to extraction unit

4. Activate the main switch (20) (control lamp (21) illuminates green).
5. "Autom./autom." push button (22) illuminates green.
 - Electronic designation for an active consumer is activated.
6. Adapt extraction unit sensitivity to suit dust-generating devices (see section "3.2.1 Individual adaptation of extraction unit sensitivity to dust-generating devices").
7. The extraction unit begins continuous operation after the "Hand/manual" push button (23) is actuated (illuminates green).



Illus. 8: Plate with control elements

20	Main switch	24	Push button for increasing air volume
21	Main switch control lamp (green)	25	Push button for reducing air volume
22	"Autom./autom." automatic mode button	27	"Filter change" control lamp
23	"Hand/manual" continuous mode button	28	"Service" control lamp

3 Operation

3.1 Checking the filter system




(see Illus. 2, Page 6, Illus. 10, Page 14 and Illus. 11, Page 14)







Caution	The D-LE 260 E triple workplace dust extraction unit should only be operated with a correctly fitted, undamaged ultra-fine filter cartridge (3) and filter bag (11).
---------	--

1. Remove the ultra-fine filter cover (4) (unscrew the 4x M5x30 flange bolts with a hexagonal screwdriver (no. 3)).
2. Pull out the ultra-fine filter cartridge (3) by rotating and drawing it upwards (see Illus. 12, Page 15).
3. Ensure that the ultra-fine filter cartridge (3) is not damaged.
4. Screw in the ultra-fine filter cartridge (3) again to the limit stop so that it sits tightly on the fitting in the ultra-fine filter chamber (D) (see Illus. 13, Page 15).
5. Screw the ultra-fine filter cover (4) to the housing with the aid of the 4x M5x30 flange bolts.
6. Remove the filter bag closure cover (2).
7. The filter bag (11) should be undamaged when inserted in the wire basket (12).
8. The plastic filter bag connection (10) should be fitted tightly to the connection fittings (7) or (9).
9. Fit the cover (2) and clamp tightly with the quick-action closure (6).

3.2 Automatic On-Off device / Connection of dust-generating devices

The extraction unit is equipped with an electronic On-Off actuator which reacts to most hand-held pieces and other dust-generating laboratory devices.

Caution	The power input of devices to be connected should not exceed 900 Watt per socket A ( ,  , ). The overall power input value of all connected devices should, in total, not exceed 2200 W .
---------	--

1. Connect the dust-generating devices to sockets A ( ,  , ).
2. Connect the automatic stop valves accordingly to sockets B ( ,  , ).
3. The "Autom./autom." button illuminates green after the unit is switched on (main switch (20) ON) (see Illus. 7, Page 9).

Note	Please contact our H+R Customer Service Dept. (tel.: +7181/9678-0) if devices other than those which we have intended are to be connected! Please note Section "3.2.1 Individual adaptation of extraction unit sensitivity to dust-generating devices" prior to this.
------	---

The extraction unit starts automatically as soon as a connected dust-generating device is activated. The unit stops after a delay of approx. 8 seconds if all connected devices are deactivated.

It is possible to adapt the unit individually if it does not react to a particular dust-generating device. Please contact the H+R Customer Service Dept. in this respect.

3.2.1 Individual adaptation of extraction unit sensitivity to dust-generating devices

(see Illus. 8, Page 10)

Note	All dust-generating devices should be connected to the extraction unit and any other devices switched to stand-by mode (see Section "2.4.2 Structure of electrical installation" in this respect).
------	--

1. Activate the extraction unit at the main switch (20). The control lamp (21) illuminates green.
2. Depress the "Hand/manual" button (23) continually:
 - The unit starts during this period
 - The extraction unit automatically reaches its highest vacuum level during operation after a short period of time. The vacuum level is subsequently reduced automatically until the vacuum motor is shut down.
4. The button (23) should only be released 3 seconds after the "Hand/manual" button (23) illumination is extinguished.
 - The extraction unit starts automatically after this
5. Actuate the "Autom./autom." button (22) briefly. The button (22) illuminates green and the extraction unit changes to automatic mode.

3.3 Automatic air volume control

The air volume is increased or decreased to suit the number of dust-generating devices in operation and is independent of the degree of dirt in the filter. The air volume can be identified on the illuminated LED's (24 and 25). The set air volume is then maintained at a constant level by electronic control until the automatic shut-off feature is triggered. The air volume can be altered by actuating button (25) (to reduce the volume) or button (24) (to increase the volume). See Illus. 8, Page 10.

Note	Illuminated LED (24) is equivalent to the minimum air extraction volume for one workplace. Illuminated LED (25) is equivalent to the maximum air extraction volume of the unit.
------	--

3.4 Automatic shut-off and filter change control lamp

(see Illus. 2, Page 6 and Illus. 8, Page 10)

Note	An underpressure sensor triggers the automatic shut-off feature and the "filter change" control lamp (27) illuminates as soon as the max. permissible filter bag (11) filling level is reached. The extraction unit and the connected dust-generating devices are switched off.
------	---

1. The filter bag (11) must be replaced (see Section "4.1 Replacing the filter bag").

Note	The extraction unit can be switched on and off again or the filter bag (11) lightly beaten if the automatic shut-off feature deactivates the unit. The unit can then operate for some more time without changing the filter bag.
------	--

2. Open the clamp closure (6) and remove the closure cover (2) to lightly beat the filter bag (11).

Note	The ultra-fine filter cartridge (3) should be checked if the filter bag (11) is only slightly full after the automatic shut-off feature is triggered (filter change lamp (27) illuminates). See Section "4.2 Cleaning (replacement) of ultra-fine filter".
------	--

4 Cleaning/Maintenance

(see Illus. 2, Page 6)

Note

The extraction unit can be switched on and off again or the filter bag (11) lightly beaten if the automatic shut-off feature deactivates the unit. The unit can then operate for some more time without changing the filter bag.

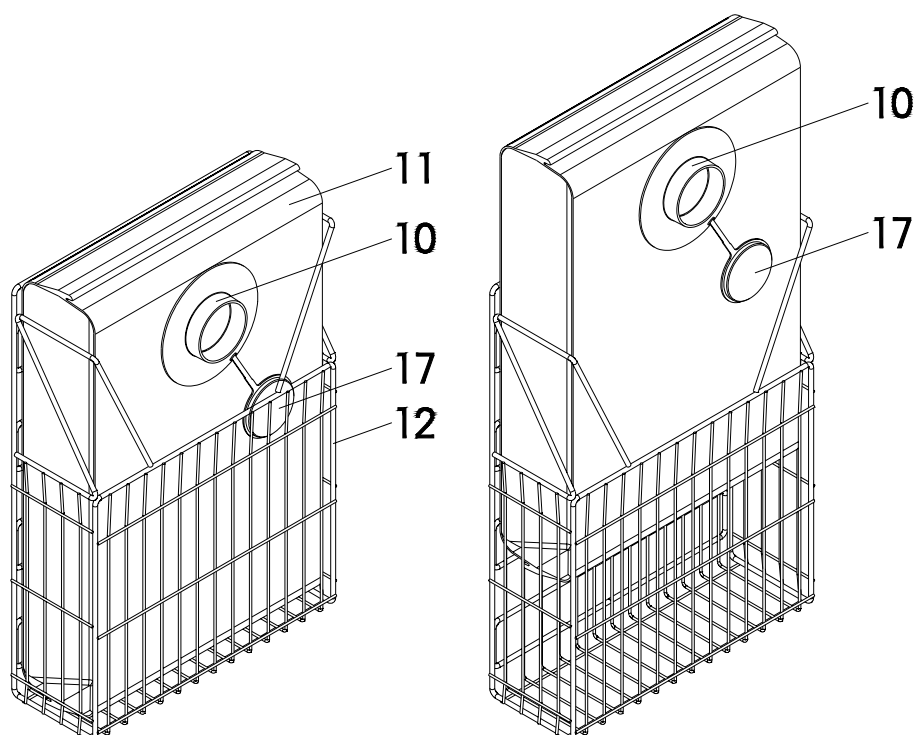
Open the clamp closure (6) and remove the closure cover (2) to lightly beat the filter bag (11).

4.1 Replacing the filter bag

4.1.1 Removing the filter bag

(see Illus. 2, Page 6 and Illus. 9, Page 13)

1. Open 1x clamp closure (6) and remove the cover (2).
2. Press the filter bag (11) plastic fitting (10) off the unit fitting (7) with both hands.
3. Pull the filter bag (11) out of the extractor unit together with the wire basket (12).
4. Close the filter bag (11) with the attached closure cover (17).
5. Take the filter bag (11) and wire basket (12) to a disposal point.



Illus. 9: Removing the filter bag

Caution

The disposable filter bag should never be emptied and reused as, apart from health considerations, this will lead to malfunctions.

Note

Compressed air should not be used to remove any dust which is present from the filter chamber (D or E)!

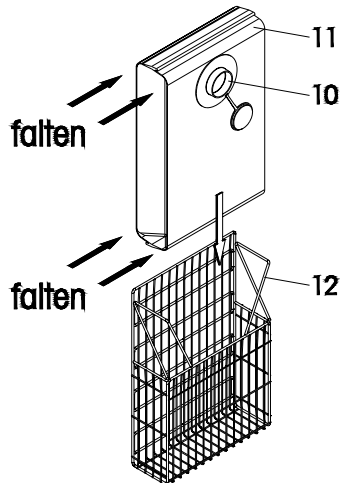
Note

See Section “4.2 Cleaning (replacement) of ultra-fine filter”.

4.1.2 Inserting the filter bag

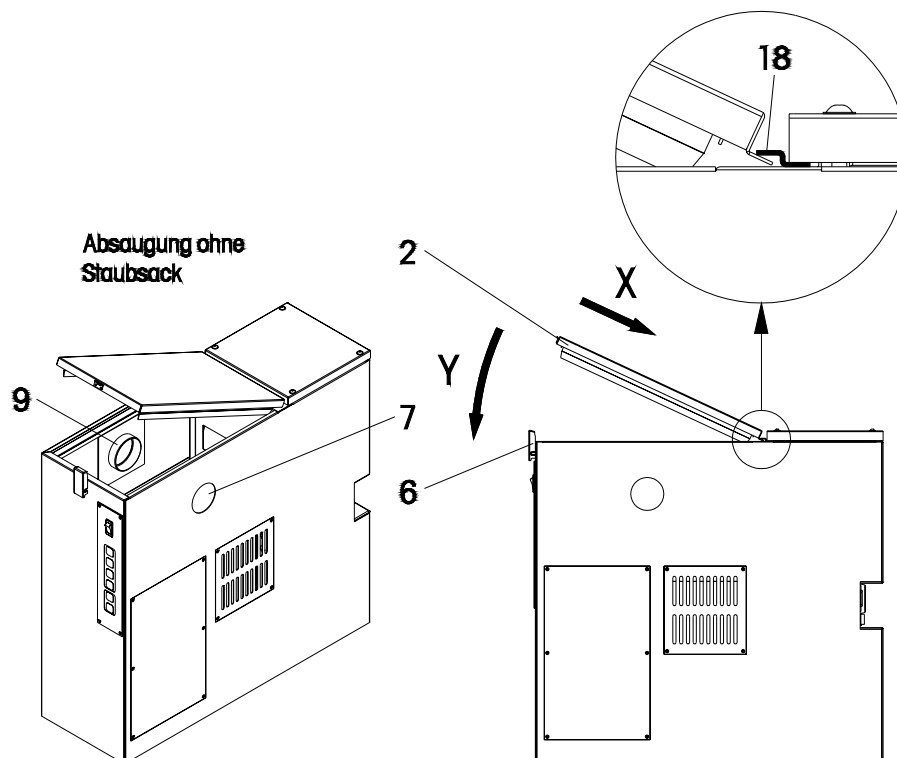
(see Illus. 2, Page 6, Illus. 10, Page 14 and Illus. 11, Page 14)

1. Fold the new filter bag (11) as shown in Illus. 9 and insert in the wire basket (12).



Illus. 10: inserting the filter bag

2. Push the new filter bag (11) together with the wire basket (12) into the extractor unit. The filter bag connection (10) is fitted tightly onto the connection fittings (7) or (9) in the filter chamber during this procedure.
3. Push the plastic connection (10) tightly onto the unit connection fitting (7).
4. Push the cover (2) under the Z-profile (18) in **direction X** on one side. Then move the cover (2) downwards in **direction Y** and fit tightly to the housing.
5. Clamp the cover (2) with the quick-action closure (6).



Illus. 11: Fitting the filter bag cover

4.2 Cleaning (replacement) of ultra-fine filter

Note

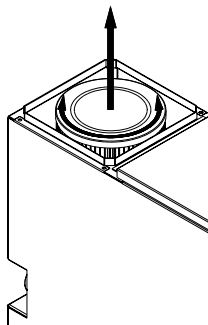
The ultra-fine filter cartridge (3) should be removed and replaced after approx. ten filter bag (11) changes!

We will gladly clean the ultra-fine filter cartridge (3) as part of an exchange, using only filters tested in accordance with ZH 1/487 Paragraph 2 (with test certificate complying with DIN 24 184).

4.2.1 Removing the ultra-fine filter

(see Illus. 2, Page 6)

1. Remove the ultra-fine filter cover (4) by unscrewing the 4x M5x30 socket flange bolts (no. 3).
2. Rotate the ultra-fine filter cartridge (3) to remove.



Illus. 12: Removing the ultra-fine filter

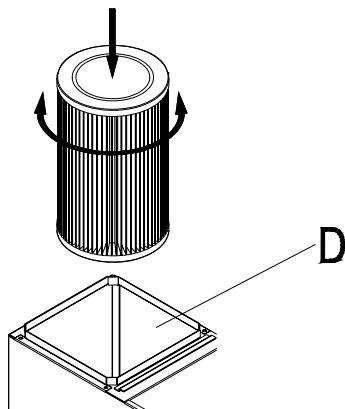
Caution

The sealing surfaces in the ultra-fine filter chamber (D) should be free of dust, as dust can damage the vacuum motor.

The ultra-fine filter chamber (D) and filter bag chamber (E) should be cleaned by **vacuuming**. Compressed air should never be used!!!

4.2.2 Fitting the ultra-fine filter

1. Press the cleaned or new ultra-fine filter cartridge (3) onto the plastic fitting in the ultra-fine filter chamber (D) by rotating it.
2. Fit the cover (4).
3. Tighten the cover (4) firmly and evenly with the 4x M5x30 socket flange bolts (no. 3).



Illus. 13: Fitting the ultra-fine filter

4.3 “Service” control lamp

The extraction fan should be replaced if the “Service” control lamp (28) illuminates (see Illus. 8, Page 10).

The extraction fan should only be replaced or checked by a qualified electrician.

5 Electrical fuse protection

(see Illus. 3, Page 6 and Illus. 6, Page 9)

The entire unit is protected by two 16 A/T (2x) fine fuses (19).

6 Warranty conditions

This device conforms with current safety regulations and was subjected to extensive testing before leaving the works.

We grant a 12 months guarantee in which we are obliged to carry out all repairs necessary as a result of material or production faults free of charge.

Warranty limitations:

1. The guarantee is considered void if repairs are not carried out by specialized dealers or by us.
2. Spare parts deliveries made for reasons covered by the guarantee do not lead to an extension of the original guaranty period.
3. Incorrect installation (e.g. failure to heed VDE* regulations or written installation instructions).
4. Incorrect operation or stress.
5. External influences (e.g. transportation damage, damage caused by impacting or blows, damage caused by the effects of weather or other natural phenomenae).
6. Repairs and alterations not carried out by authorized third parties.
7. Unit breakdown resulting from adjustment, alteration or any other attempt to adapt the unit is not considered a material or production fault. **This guarantee neither encompasses the costs of such adjustment, alteration or any other attempt to adapt the unit, nor remedying of the resulting damage.**
8. Normal wear and tear (e.g. spray nozzles, hoses, and including hand-held pieces, union nuts, glass panes, carbon brushes, illumination agents) or damage resulting from incorrect operation is not covered by the terms of guarantee.

In order to provide you with a comprehensive service we would like you to fill out the guarantee return form (enclosed at the beginning of these instructions) and send it to us by fax or letter (window envelope).

* Verband Deutscher Elektrotechniker (German Electrical Technician Association)

Fax no.: 0 71 81/ 73 13 9

-----✉-----✉-----✉-----✉-----✉----- für Fensterumschlag hier falten -----✉-----

Duplicate
Guarantee return form

Harnisch+Rieth GmbH & Co.
Maschinenbau
Postfach 1260
73644 Winterbach

Machine designation:	Triple workplace dust extraction unit
Maschine type:	D-LE 260 E
Maschine no.:	
Date of purchase:	
Dealer/Store:	
From:	
Date/signature:	

7 EC declaration of conformity

as stipulated by the EC directive for machines 98/37/EC

We hereby declare that the design of the machine specified below conforms with basic safety and health requirements of the listed EC directives.

This certificate is no longer valid in the event of modifications being made to the machine which are not approved by us.

Name of the manufacturer : Harnisch+Rieth
Address of the manufacturer : Küferstraße 14-16, 73650 Winterbach
Machine designation : Triple workplace dust extraction unit
Machine type : D-LE 260 E

The following pertinent EC directives were applied:

EC machine directive (98/37/EC)

EC low voltage directive (73/23/EEC), equivalent to 1. GSG regulation of 11.06.79

EC EMC directive (89/336/EEC), equivalent to EMC law of 09.11.92

The following harmonizing standards were applied:

DIN EN 292 : Machine safety.

DIN EN 61 010-1 : Safety regulations for electrical measurement, control and laboratory devices.

DIN EN 55 014 : Interference suppression of electrical devices and systems.

DIN EN 55 104 : Electromagnetic compatibility, noise resistance requirements (category I).

The following national technical specifications were applied:

ZH 1/487 : Device for collecting dust which poses a health risk and reintroducing fresh air into workrooms.

Technical documentation is available.

The operation instructions relating to the machine are also available.

Director of the Quality Control Department

Winterbach, 15th March, 2000